labs for the 21st century

Labs for the 21st Century Conference Presentation

Adaptive Reuse of Existing Buildings to Laboratories

Chris Leary, AIA
The Stubbins Associates

Donald Posson, PE, CIPE
Kling

Reusing an existing building is good for the environment

1. Recycling an existing building
2. Conserving embodied energy
3. Saving useful materials from the landfill
4. Reviving underutilized resource
5. Alternate to sprawl & greenfield development
6. Preserving a historical landmark

Relevant Credits

Credit MR1 Building Reuse

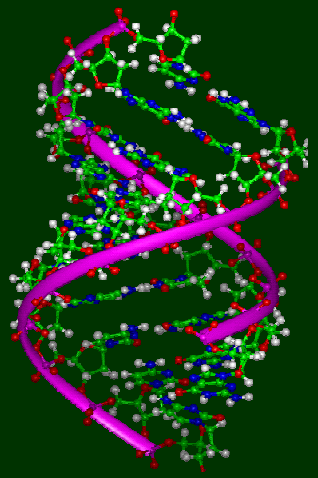
- MR 1.1 - Maintain 75% of existing walls, floors and roof
  - (16% of LEED Certified projects earned this point)
- MR1.2 - Maintain 100% of existing walls, floors and roof
  - (6% of LEED Certified projects earned this point)
- MR 1.3 Maintain 100% of shell/structure & 50% of non-shell/non-structure
  - (no LEED Certified projects earned this point)
- Consider trade offs with other LEED Credits – i.e. energy efficiency

Credit % courtesy of the U.S. Green Building Council

FedEx & NIBRI

FedEx to Gene Logic

GENE LOGIC



Tracking bar codes to tracking DNA codes

Case Study 1

FedEx to Gene Logic

Adaptive reuse of 60,000 SF FedEx Processing Center to BioInformatics Research

Case Study 1

FedEx to Gene Logic

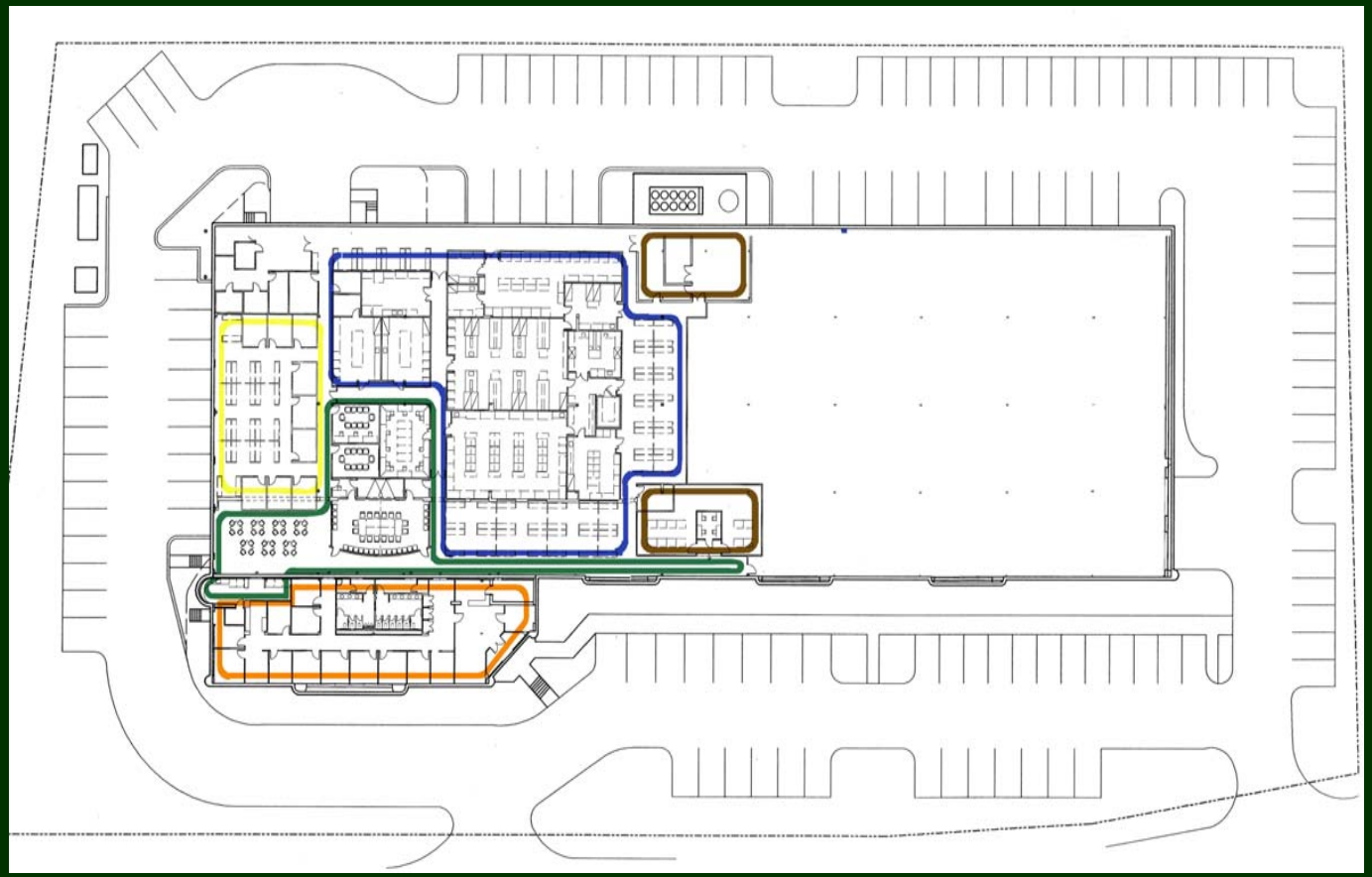
FedEx to Gene Logic

Energy Code: Envelope (ASHRAE 90.1-1999)

	Existing U-Value	U-Value (Heated)	U-Value (Heated/ Cooled)
Roof	0.095	0.097	0.065
Walls	0.112	0.134	0.113
Glazing	1.10	1.22	0.57

Case Study 1

FedEx to Gene Logic



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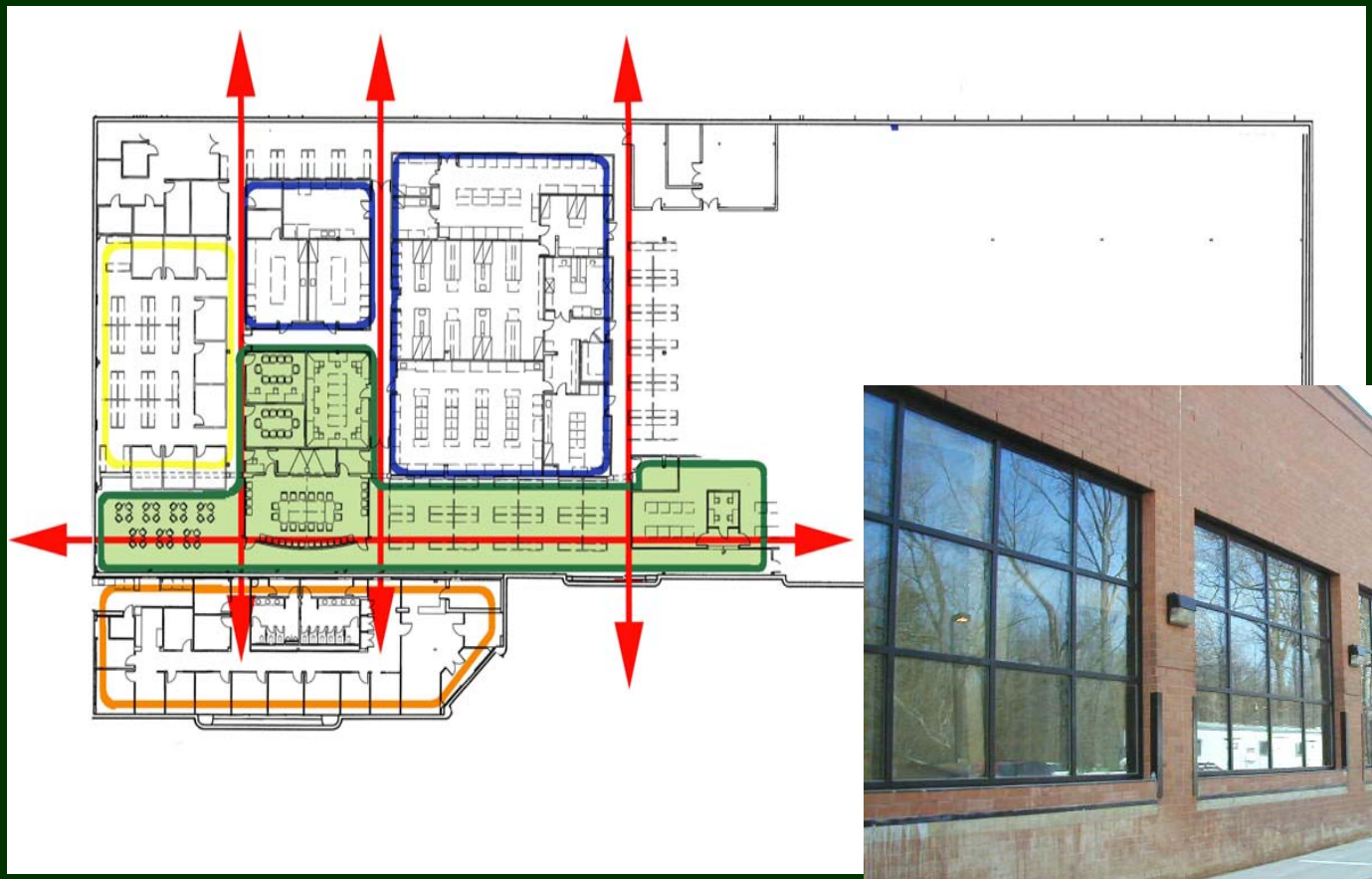

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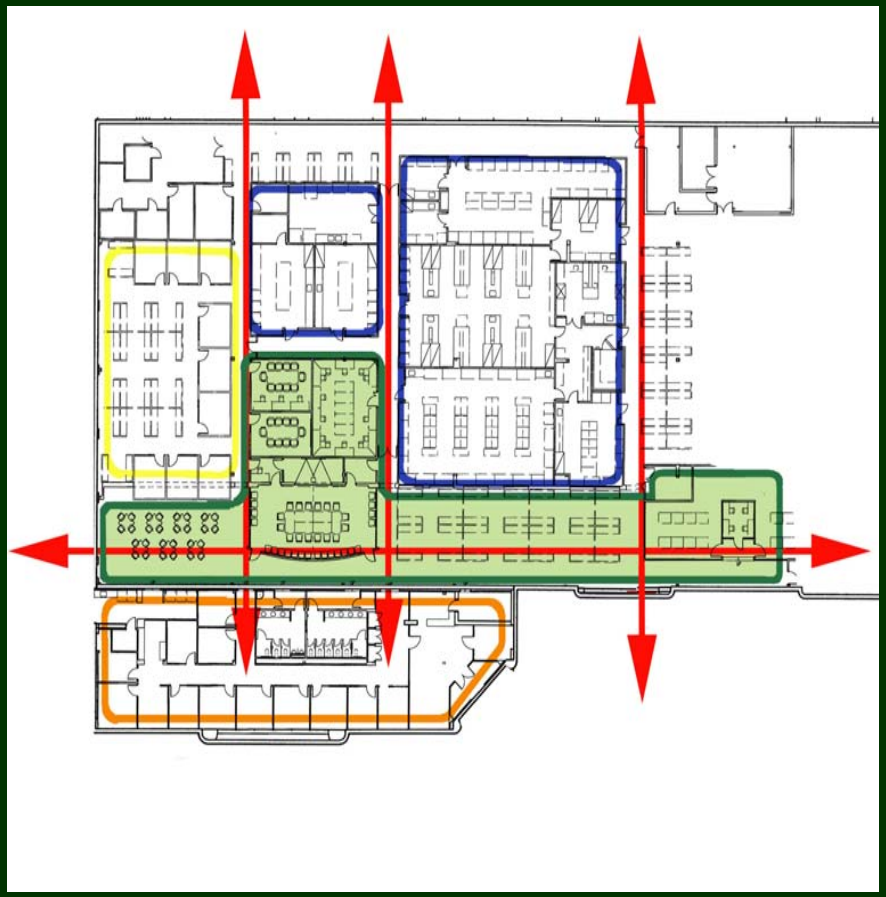

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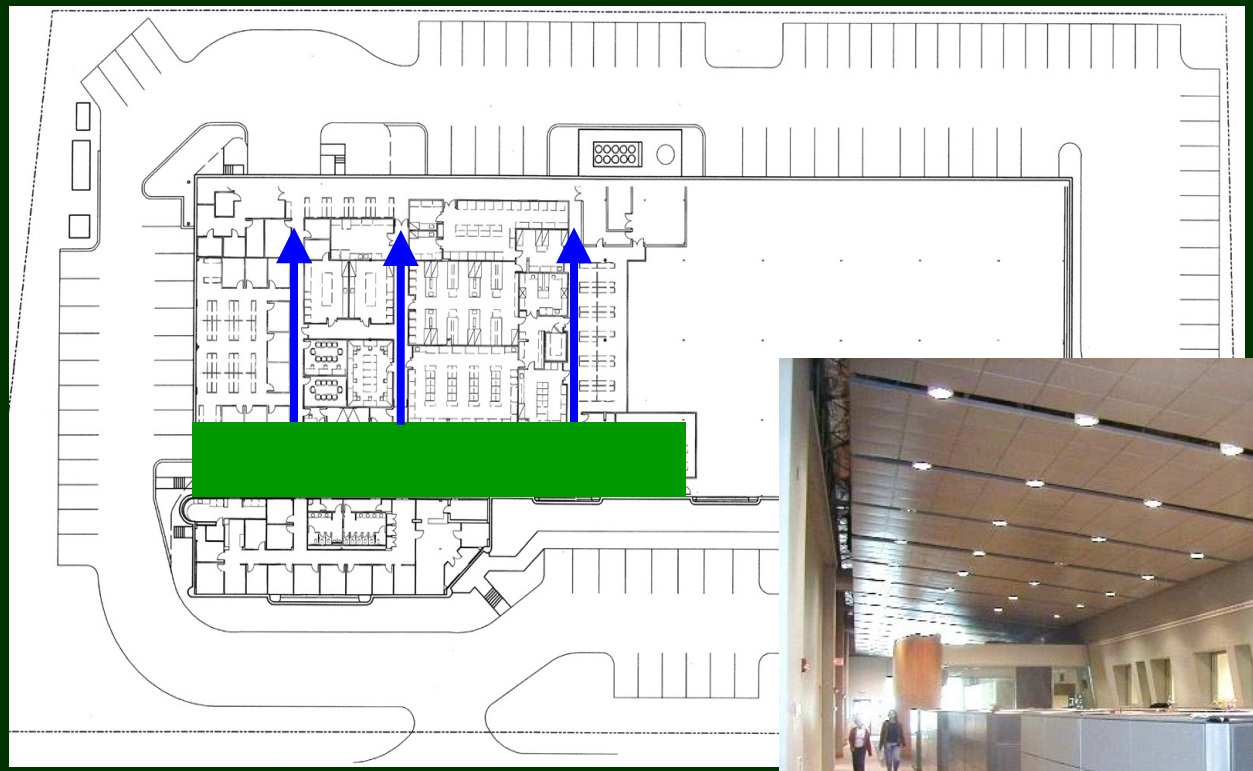

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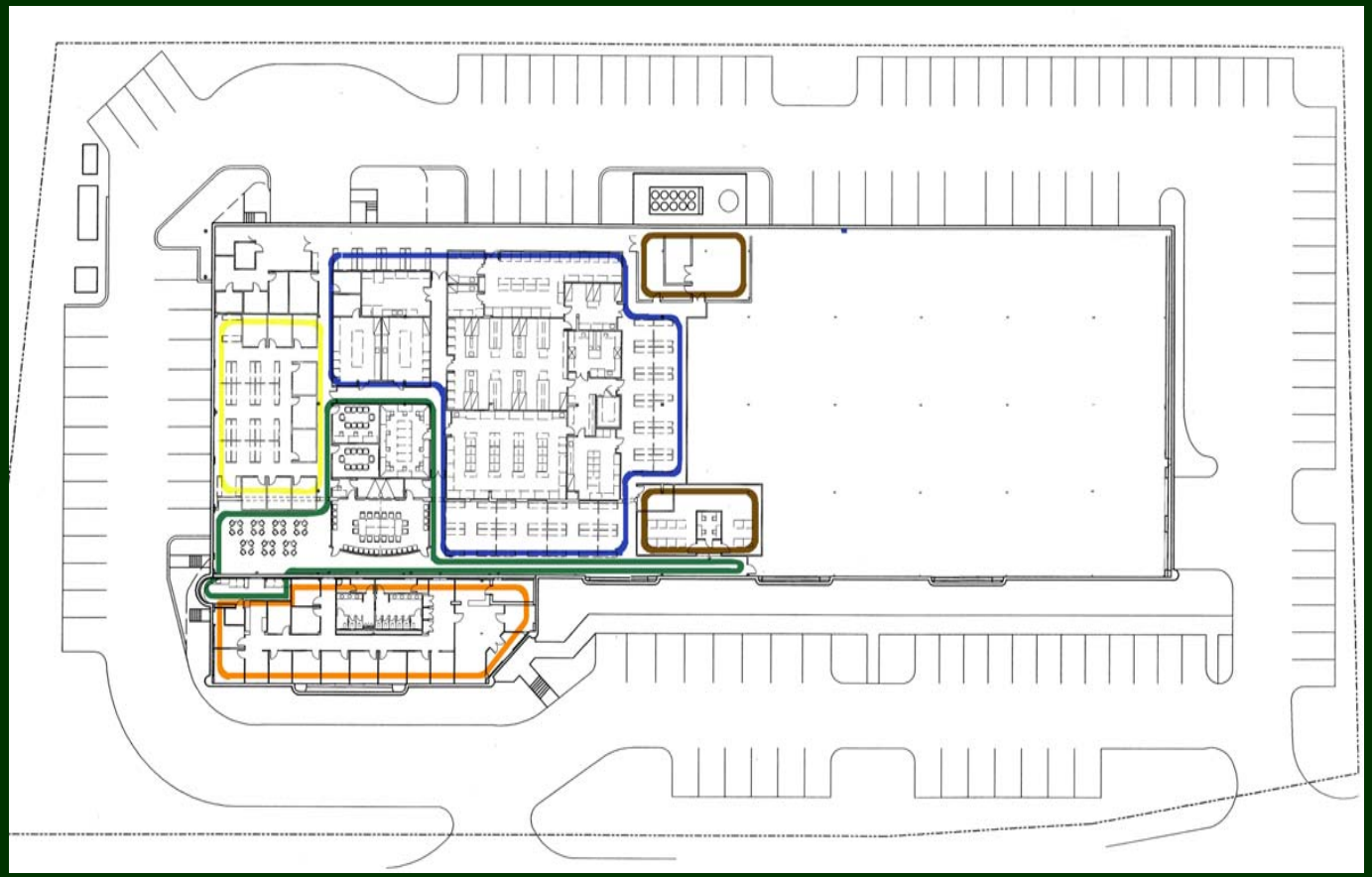

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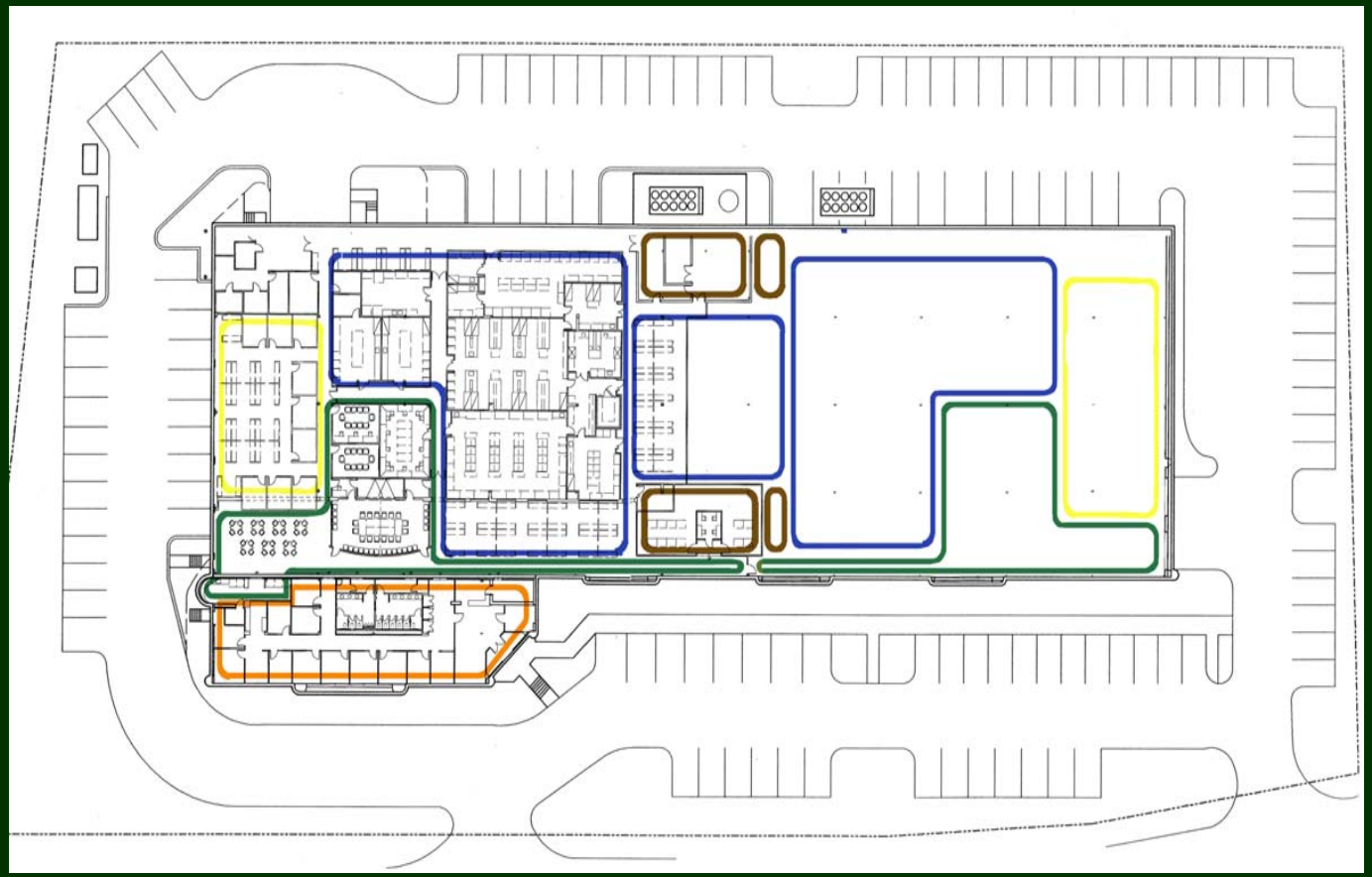

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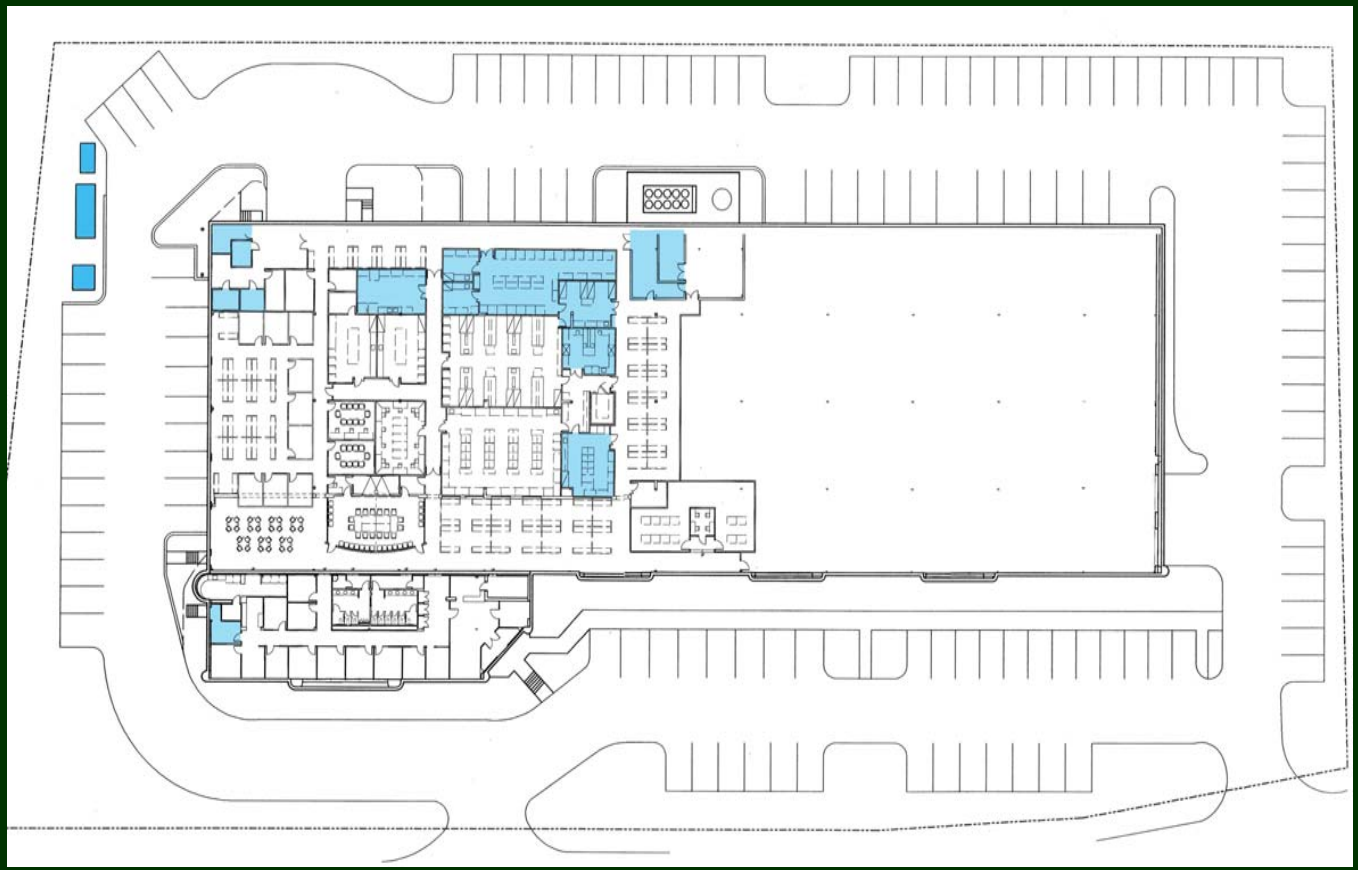

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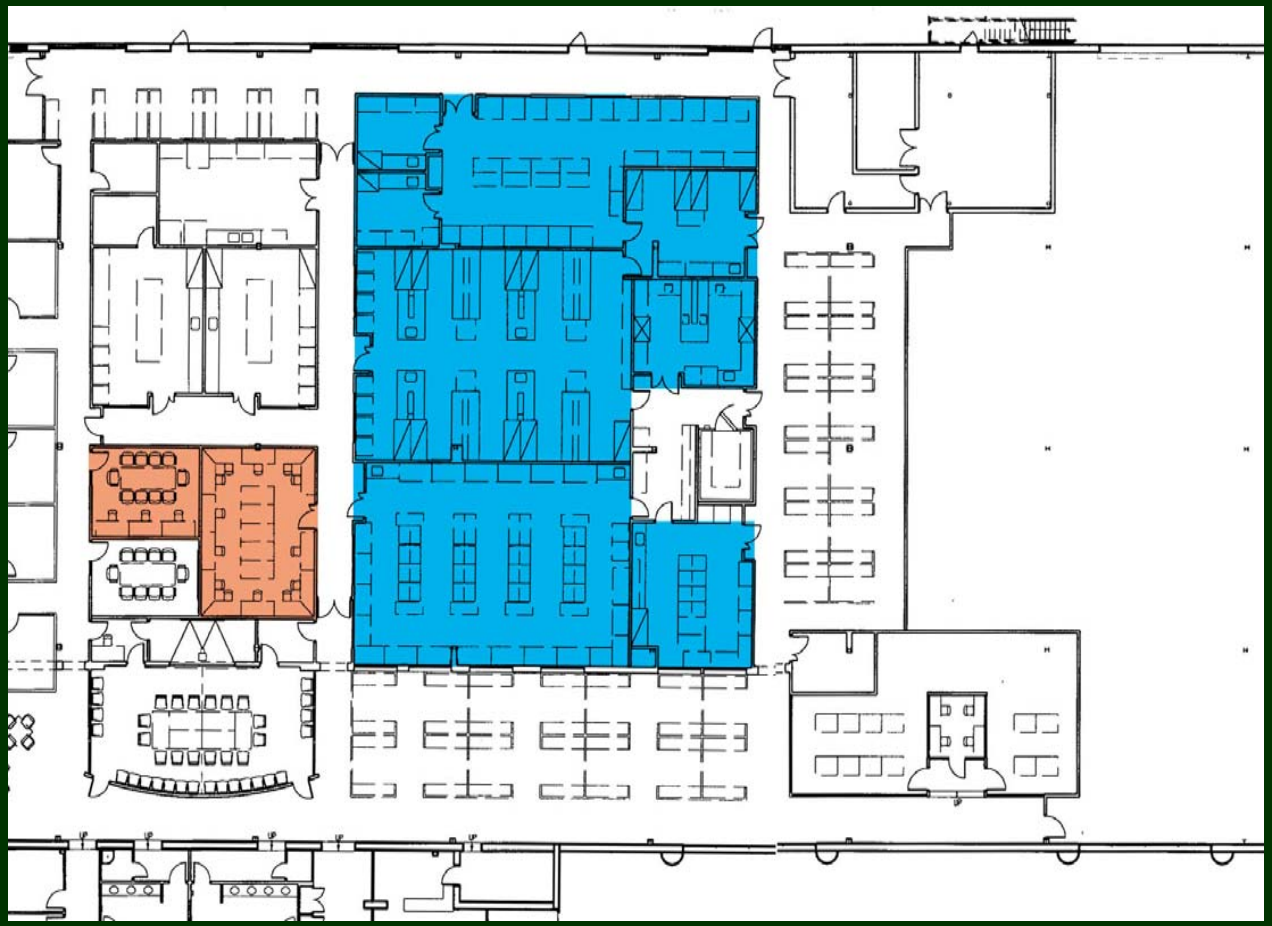

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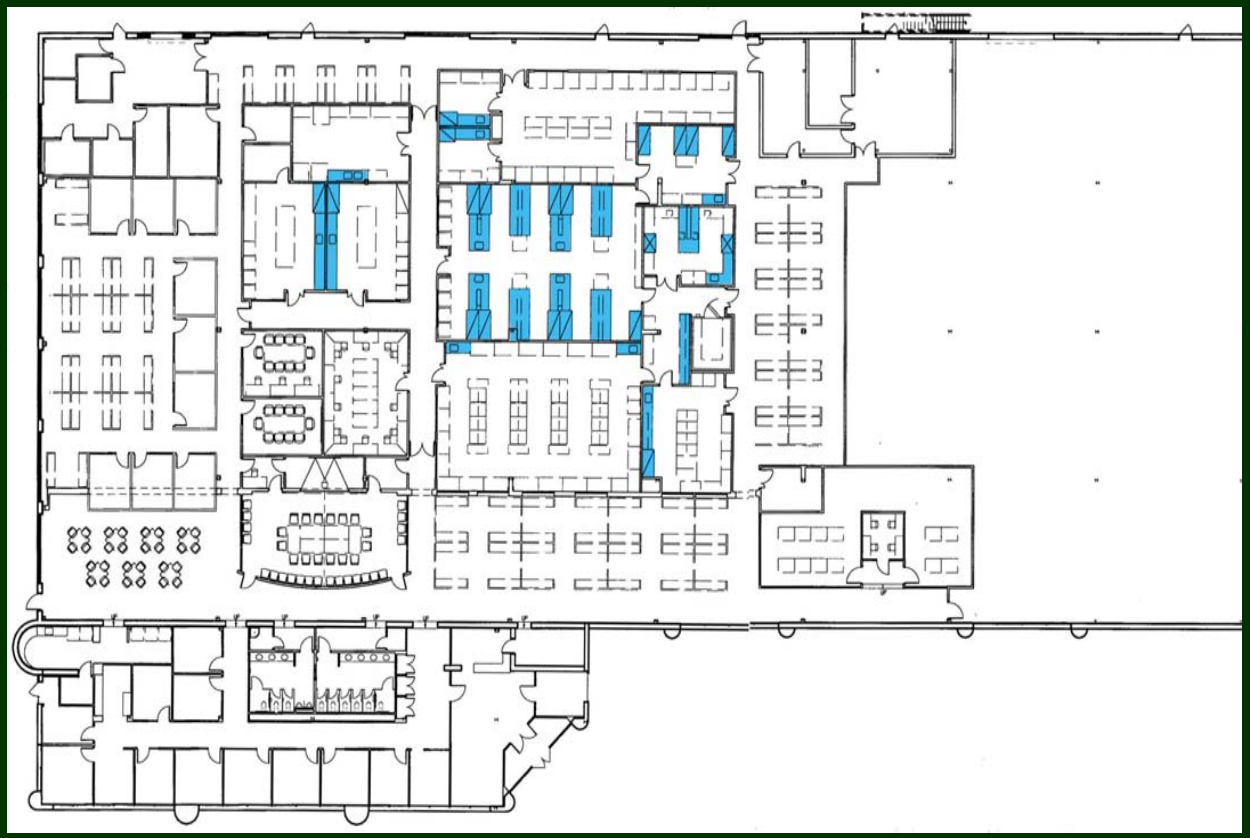

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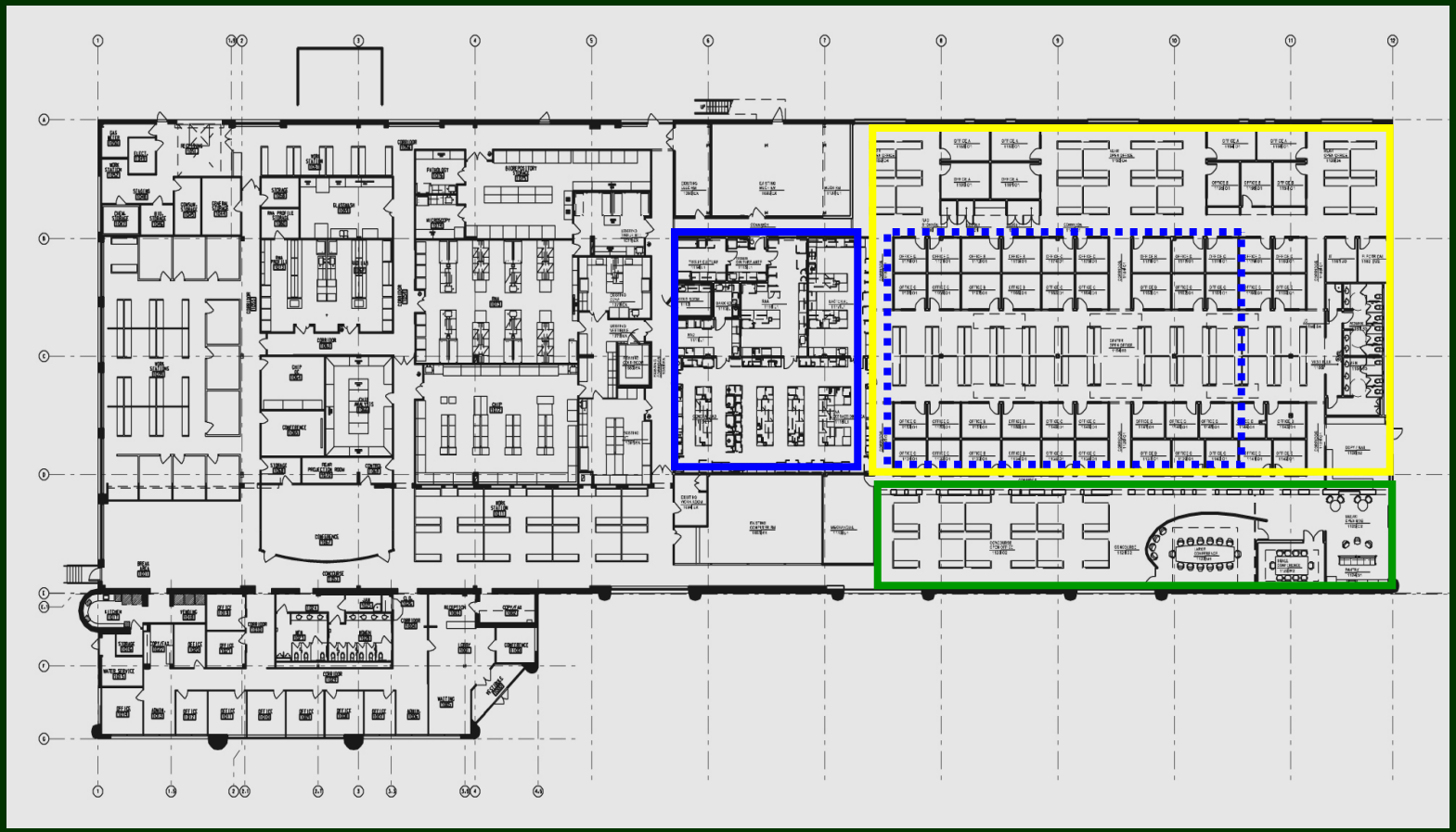

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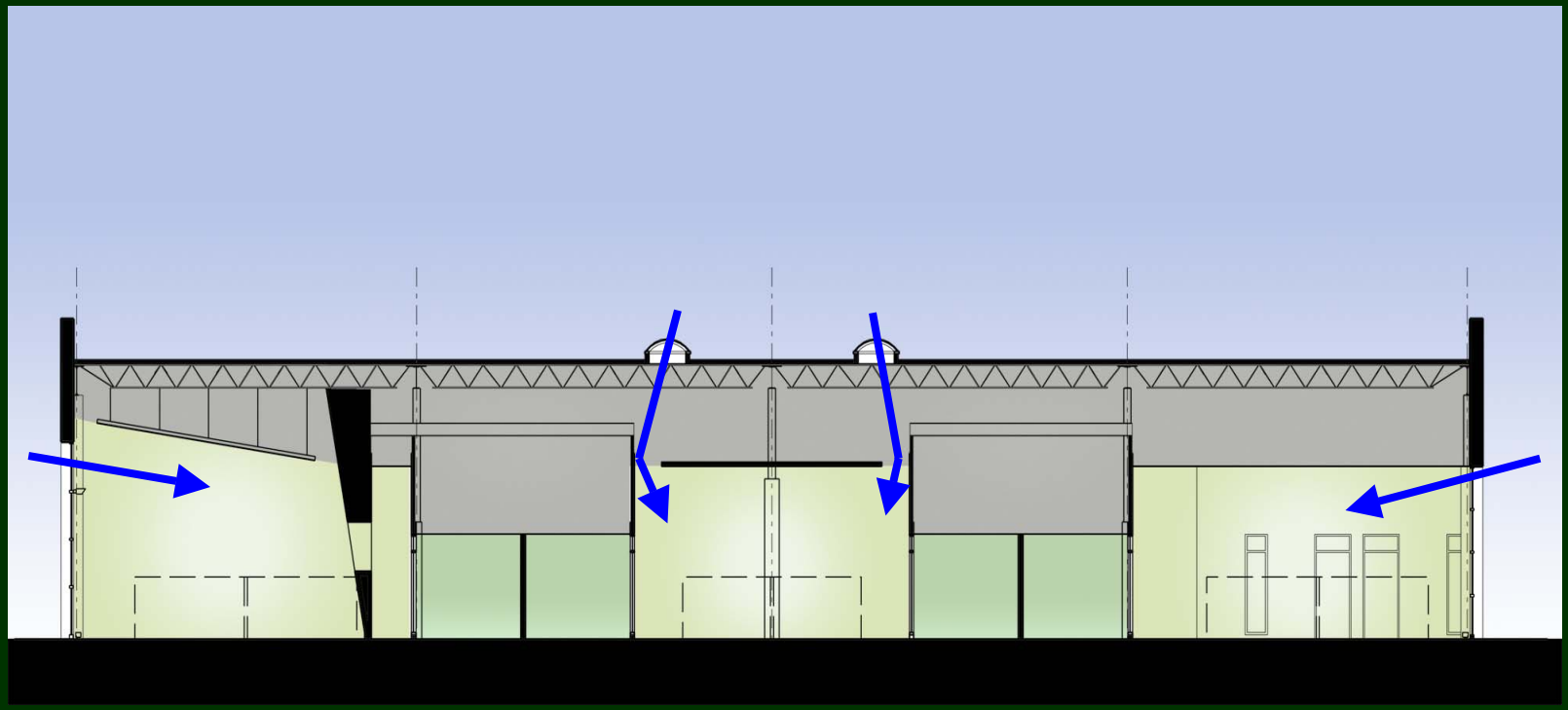

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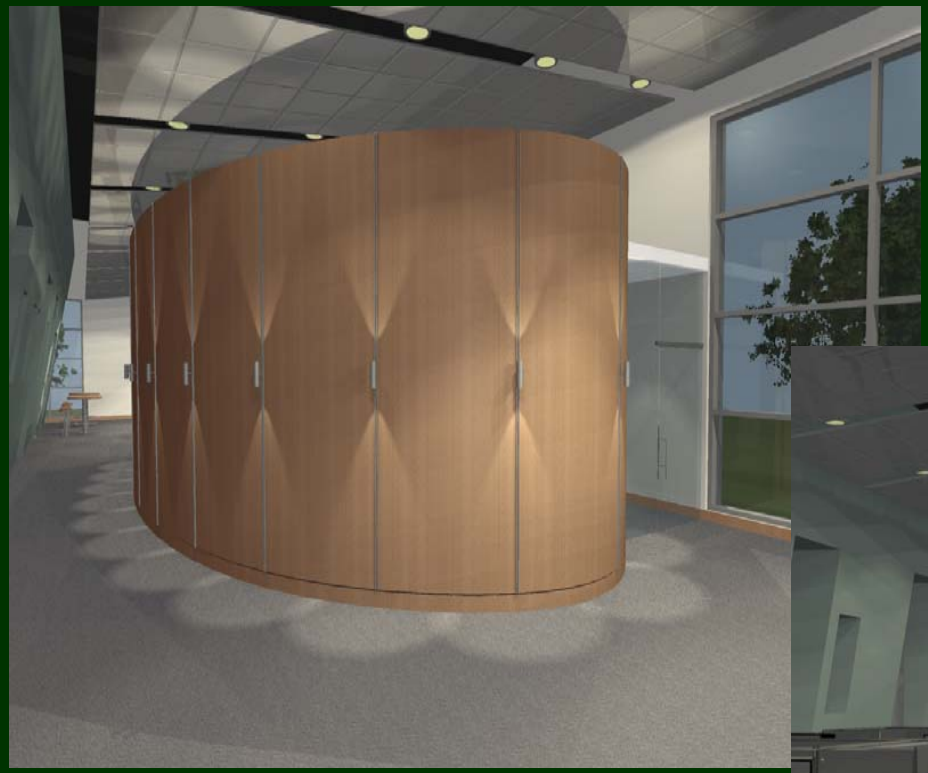


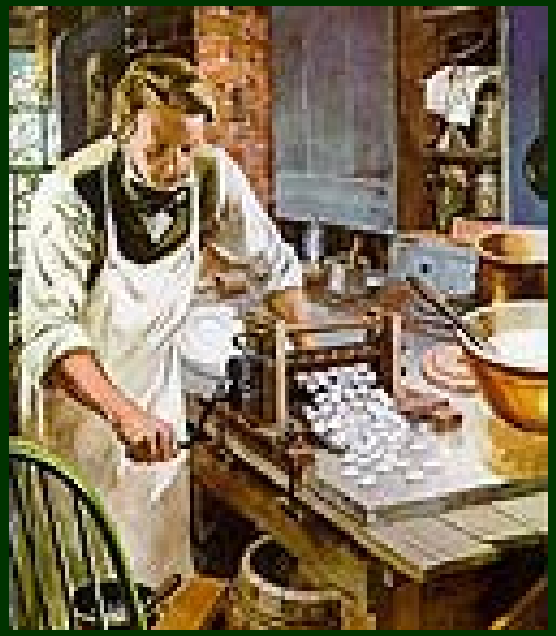
Case Study 2

NECCO to NIBRI

Adaptive reuse of a landmark 500,000 SF candy factory to research laboratories

Case Study 2

NECCO to NIBRI



from candy factory to pharmaceutical research

recycling an existing building

NECCO to Novartis

- Saved useful materials from the landfill
- Conserved embodied energy

- By reusing:
  - 7,000 tons of masonry
  - 31,000 tons of concrete

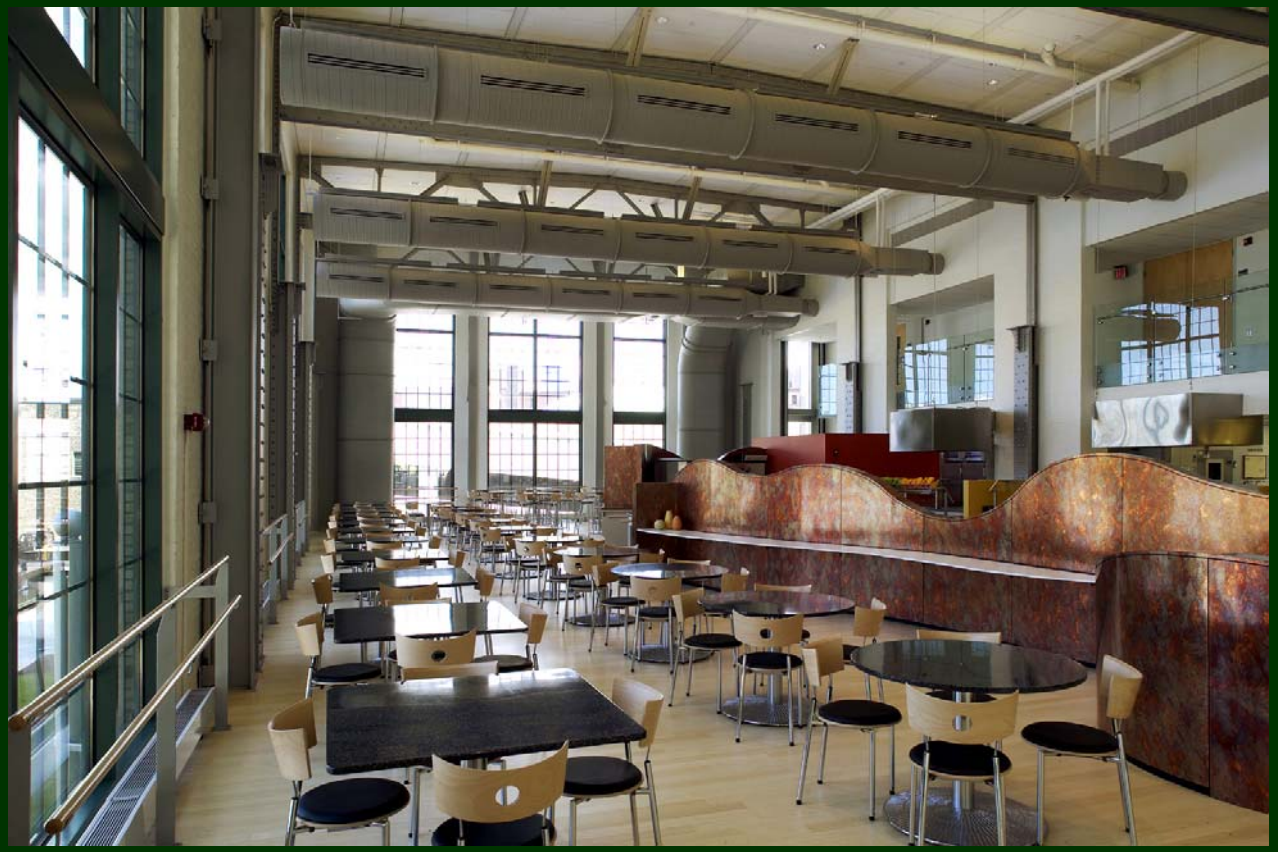
an alternate to sprawl

NECCO to NIBRI

urban context of Cambridge, Ma

a new life for historical landmark

NECCO to NIBRI



from power plant to cafeteria

a new life for historical landmark

NECCO to NIBRI

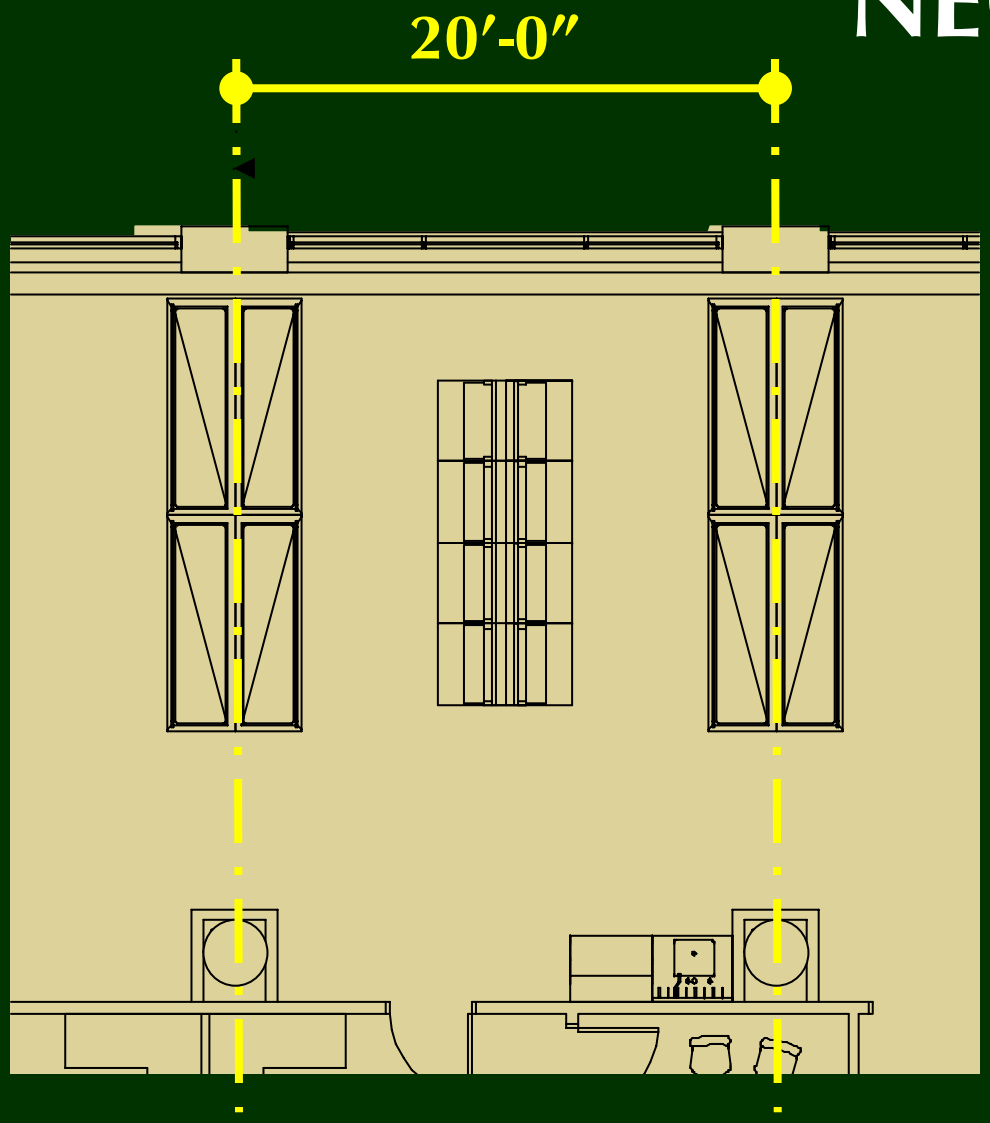
floor plate

NECCO to NIBRI

75,000 SF floor plate

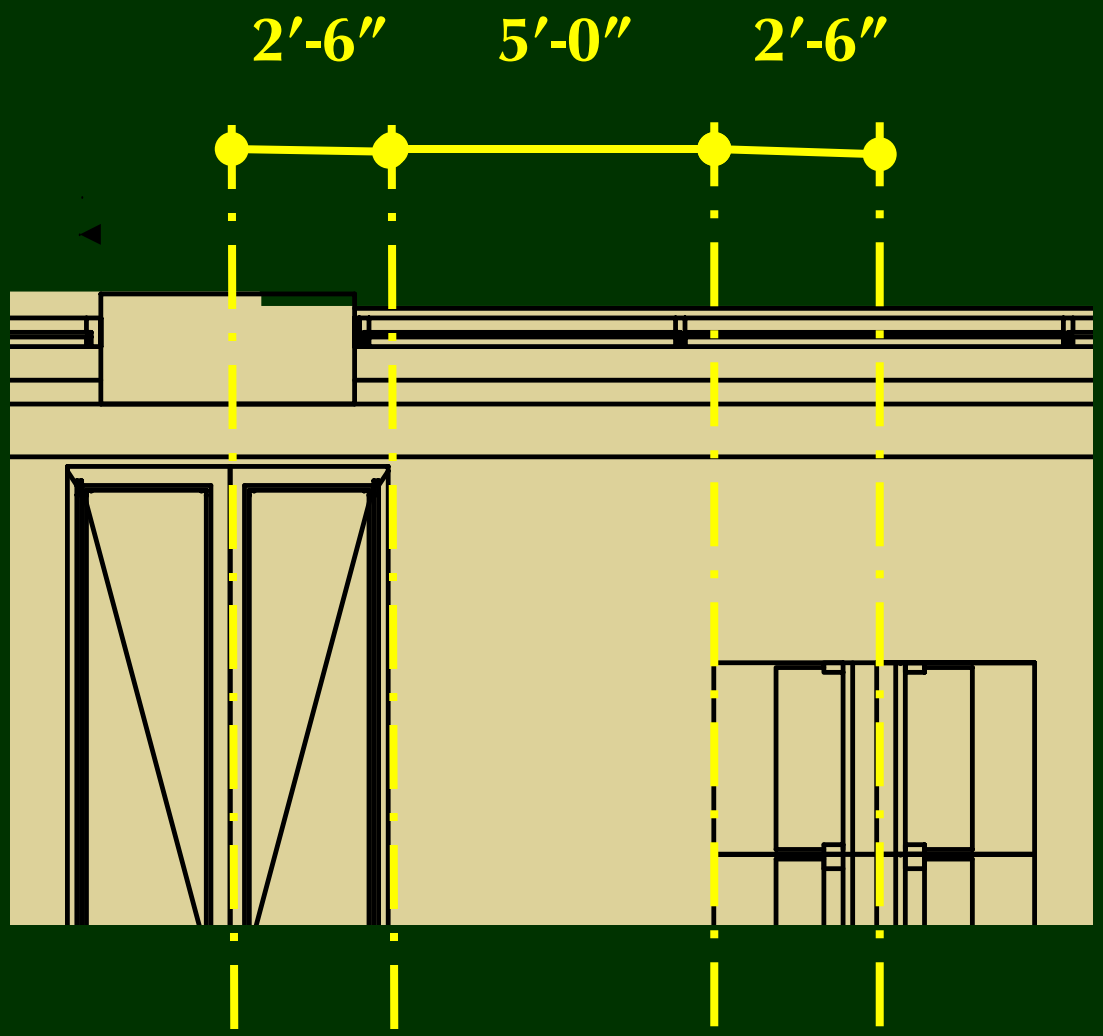
column bay spacing

NECCO to NIBRI



typical column bay

column bay spacing



Casework and fume hood spacing

floor to floor height

NECCO to NIBRI

floor to floor height

NECCO to NIBRI

floor to floor height

NECCO to NIBRI

floor to floor height

NECCO to NIBRI

perimeter envelope

NECCO to NIBRI

perimeter envelope

NECCO to NIBRI

perimeter envelope

NECCO to NIBRI

perimeter envelope

NECCO to NIBRI

perimeter envelope

NECCO to NIBRI

perimeter envelope

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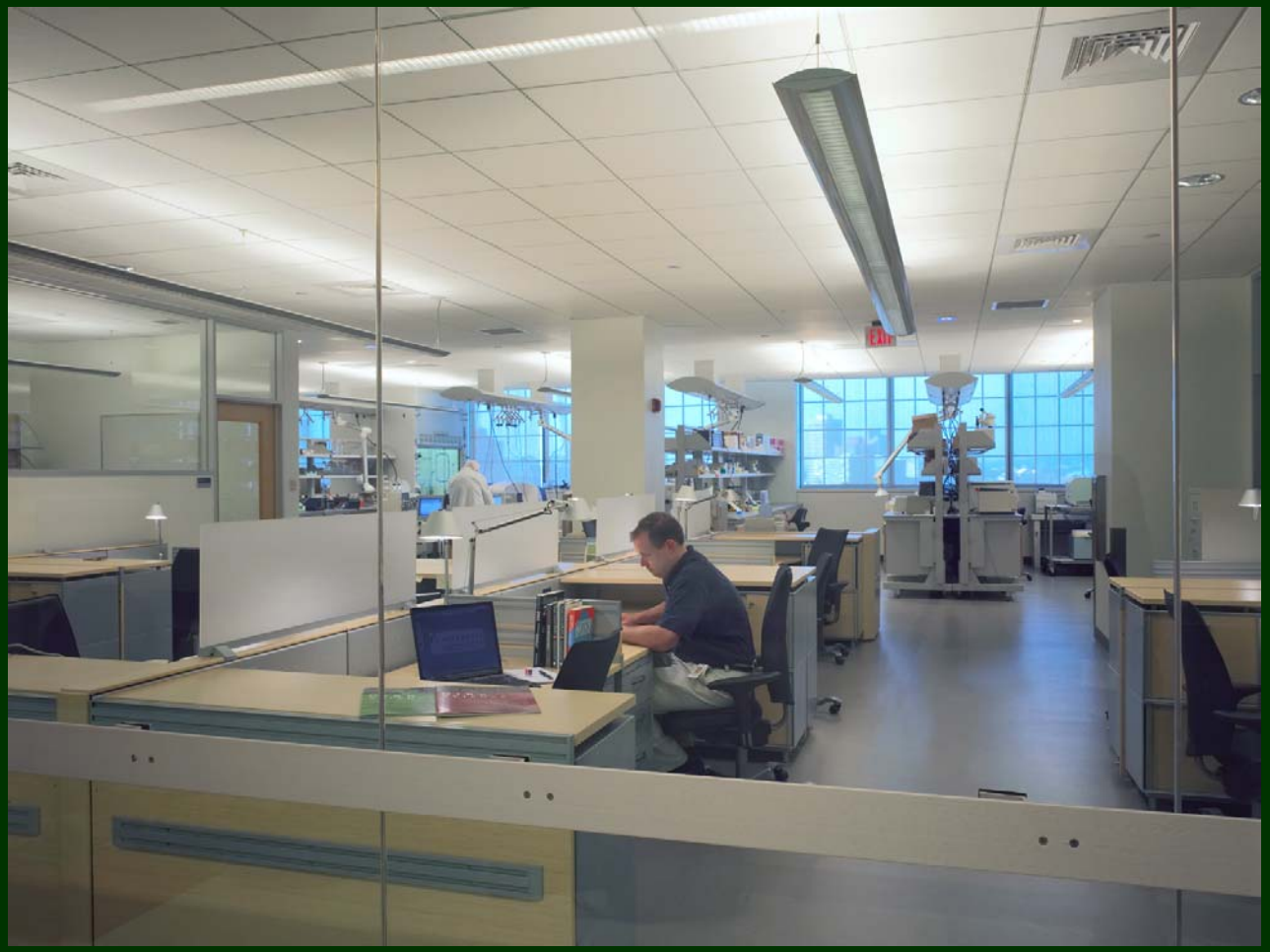


perimeter envelope

NECCO to NIBRI

perimeter envelope

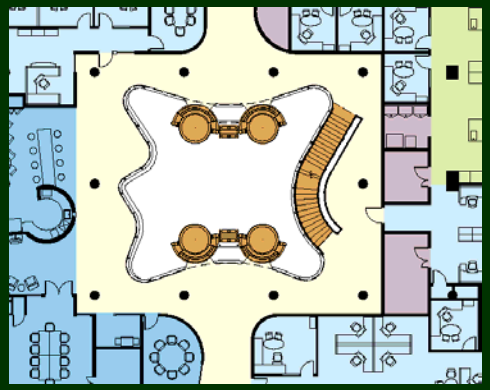
NECCO to NIBRI

new services

NECCO to NIBRI

new atrium

NECCO to NIBRI



structural modifications for new atrium

new atrium

NECCO to NIBRI

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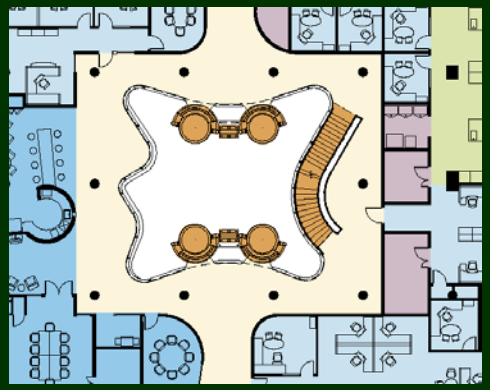

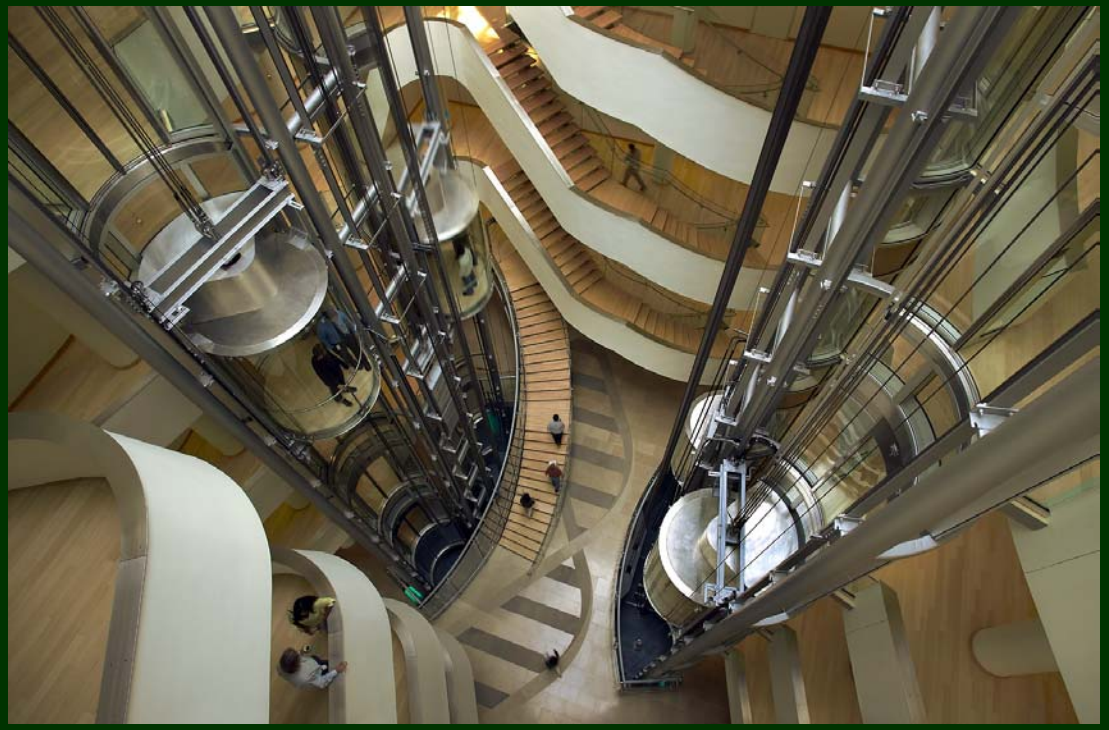

new atrium

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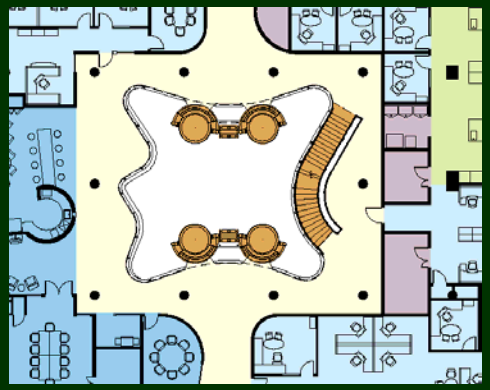

new atrium

Case Study 2

NECCO to NIBRI

Adaptive reuse involves challenges in the things that you can't change and the thing that you can

conclusion

the things that you can't change

1. Floor plate
2. Column bay spacing
3. Floor to floor height
4. Perimeter shape and windows for day lighting
5. Structural capacity and vibration
6. Roof & site area for new services and & equipment

the things that you can change

1. Perimeter envelope modifications
2. Services and shafts
   - power
   - gas
   - air

Chris Leary, AIA cleary@stubbins.us

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Kling
2000 L Street NW
Washington, DC 20036
(202) 785-5800

The Stubbins Associates, Inc.
1030 Massachusetts Venue
Cambridge, MA 02138
(617) 491-6450